Course Name:
Machine Learning
Duration:
5 Days
Course outline:

Day-1

- Why, How, What of Machine Learning- ecosystem overview from IoT to Big Data and how ML fits in
- Statistics for Machine Learning; Correlation and Covariance; learning rate; gradient descent
- Different types of machine learnings- classification v/s regression; supervised v/s unsupervised; graph v/s deep learning; contextual v/s non-contextual learning
- Stages of Machine learning
- Simple introduction to ML: common algorithms and understanding their usage
- Mathematics behind algorithms- Graph Theory for Linear Regression and K-nearest neighbor
- Hypothesis Formation and testing with Chi-Squared tests

Day - 2

- Data Cleaning Overview: Pandas, Numpy, Scipy
- Observing and handling outliers: Matplotlib, seaborn, scatter matrix
- Observing and handling missing values
- Feature Selection, tuning and transformation
- Feature Engineering in strings and tactics- One Hot Mapping, Encoding

Day - 3

- Algorithms Deep Dive [Graph Theory + Mathematics + Python]: SVM, KNN, K-means,
- Tree Based Algorithms: Decision Tree, Random Forest, Isolated Random Forest, Boosted Trees- CART
- Applying algorithms to a problem set
- Calculating metrics and selecting a good algorithm- Accuracy, precision, recall, Cross Validation Score, confusion matrix

Day – 4

- Deep Dive: Cross Validation Score and types
- Working with Timeseries: Moving Averages, Holt's Winter, ARIMA
- Prophet forecasting model
- Ensemble

Day - 5

- Feature tuning and hyperparameters
- Advanced Algorithms: Xgboost
- Deploying a Machine Learning model as API
- String neighbors and close-by words: Levenshtein String distance Algorithm